DOCUMENT RESUME

ED 403 290 TM 026 010

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TITLE Gender Differences in Intellectual Profiles of Gifted Male and Female Elementary Students.
PUB DATE Nov 95
NOTE 9p.; Paper presented at the Annual Meeting of the Mid-South Educational Research Association (Biloxi, MS, November 9-11, 1995).
PUB TYPE Reports - Research/Technical (143) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academically Gifted; Children; Chi Square; Elementary Education; *Elementary School Students; Females; *Intelligence; Intelligence Quotient; Intelligence Tests; Males; Profiles; *Sex Differences; *Test Use
IDENTIFIERS Mississippi; *Wechsler Intelligence Scale for Children (Revised)

ABSTRACT

How boys and girls qualify for programs for gifted students using the Wechsler scales of intelligence was studied. The scores that most often qualify them and differences among those scores were studied. The Wechsler Intelligence Scale for Children-Revised (WISC-R) was used with a random sample of 120 children (60 girls and 60 boys) chosen from students tested for the gifted program of a Mississippi school district. The verbal, performance, and full-scale intelligence quotient scores were recorded for each student. A chi square statistic was used to compare boys and girls as to whether they were admitted to the gifted program based on these three IQ scores, and then to determine whether significant differences in numbers in each of the IQ ranges existed based on gender. No significant differences in verbal, performance, or full-scale IQ were found between boys and girls, and scores were exceedingly close for all three scales, with the greatest difference being that boys were 3.30 points higher than girls in full-scale IQ. A nonsignificant finding was that a disproportionate number of boys scored 130 or above on the IQ tests. Data indicate that there are only small differences between the IQ scores of boys and girls evaluated for entrance into gifted education programs and support the assumption that intelligence is equally distributed between the sexes. (Contains three tables and eight references.) (SLD)

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ED 403 290

GENDER DIFFERENCES IN INTELLECTUAL PROFILES OF GIFTED MALE AND FEMALE ELEMENTARY STUDENTS

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Mid-South Educational Research Association
Biloxi, Mississippi
November, 1995

TM026010

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In any gathering of educators, a lively discussion can usually be initiated by mentioning IQ differences between genders. This discussion has carried over into planning evaluations for use in identifying children for placement in school districts' gifted programs.

Traditional expectations have held that girls generally surpass boys in verbal educational pursuits such as writing, literature, and languages. Boys, on the other hand, are thought to excel in performance-based tasks and in scientific subjects. Maccoby and Jacklin (1974), concluded that there is sufficient evidence to conclude that girls do have somewhat higher verbal ability than boys and that boys do excel in mathematical ability and visual-spatial tasks during adolescence. How these expectations stand up when tested using a standardized measure of intelligence is the subject of this study.

The Wechsler scales of intelligence are extensively used to identify giftedness in the school population. The Wechsler Intelligence Scales for Children-Third Edition which was finalized in 1991 was standardized on 2200 children in 11 age groups (6-16) using 100 girls and 100 boys in each age range. It might be of interest to see how scores on this scale reflect the differences in abilities of boys and girls.

There was a very small difference between the scores obtained by boys and girls on the standardization sample for the Wechsler Intelligence Scale for Children-Revised (WISC-R). Boys scored 2.4 points higher in Verbal IQ, .6 points higher on Performance, and 1.8 points higher in Full Scale. None of these were considered of practical significance on the scale (Kaufman & Doppelt, 1976). It is interesting to note that boys showed the greatest advantage on the Verbal scales. The same pattern is also present in the standardization sample on the Wechsler Adult Intelligence Scale-Revised favoring males with a 2.2 verbal difference, a 1.4 performance difference, and a 2.2 point full scale gap, (Chastain & Reynolds, 1984). The composite score on the Stanford-Binet Intelligence Scale-Fourth Edition, however, shows girls with a slight advantage of 100.4 as compared to 99.1 for boys, (Thorndike, Hagen & Sattler, 1986b).

In studies by Speck (1978), and by Karnes and Brown (1980b), it was found that within gifted samples there were significant differences between males and females. Girls consistently excelled in coding, while boys scored higher on information, block design and Verbal IQ.

A study by Wilderson (1993), of 456 third grade children with IQ's of 120 and above reveals some interesting results. These children were tested using the WISC-R to determine their eligibility for a gifted program. Results show a significantly larger number of boys with IQs of 130 and above. The difference between individual verbal and performance scores were similar, but boys showed more variability in their profiles than girls. Boys scored significantly higher on information, arithmetic, and block design and girls obtained higher scores on comprehension, picture arrangement and coding.

In a gender-based comparison of the WISC-R performance of Dutch schoolchildren (Born & Lynn, 1994), it was found that girls scored higher on coding and digit span, while boys scored higher on all other subtests with information being a particular strength.

In a study of 72 children given the Wechsler Preschool and Primary Scale of Intelligence, the Wechsler Intelligence Scale for Children-Revised and the Wechsler Preschool and Primary Scale of Intelligence-Revised, the mean verbal IQs for boys were significantly higher than for girls on all three scales. Boys were also significantly favored on all three scales on the vocabulary and comprehension subtests, (Quereshi & Seitz, 1994).

Given the gender differences noted in these studies, just how do boys and girls qualify for programs for gifted students using the Wechsler scales of intelligence. Which scores most often qualify them, and are there significant differences among these scores?

Method

Subjects

The subjects of the study attended public school in a Mississippi school district of approximately 4100 students. The WISC-III is administered in grades 2 through 8 for admission to the school district's gifted program. A random sample of 120 children (60 girls and 60 boys) was chosen from those tested for the gifted program for inclusion in this study. The children tested for the gifted program using the WISC-III were referred based on grades, achievement test scores, the Otis Lennon School Ability Test and two gifted behavior checklists completed by the parent. All the children studied had qualified for the gifted program based on a score of 120 or above on any of the WISC-IIIs IQ scores (verbal, performance or full scale.)

Procedure

The verbal, performance and full scale IQ scores were recorded for each student. The sample was first examined by comparing verbal, performance and full scale IQ means by gender using the t-test for independent samples. A chi squared statistic was then used to compare boys and girls as to whether they were admitted to the gifted program based on one of the three scores, two of the scores or all three IQ scores. Each gender group was then divided into IQ ranges for each of the three IQ scores (verbal, performance, and full scale). Scores were divided as "below 130" and "130 and above". The chi square statistic was used to determine if significant differences in numbers in each IQ range existed based on gender.

Results

As can be seen in Table 1, no significant differences in Verbal, Performance, or Full Scale IQ were found between boys and girls. In fact, scores were found to be exceedingly close in all three instances. The greatest difference was observed in the Full Scale IQ in which boys were 3.30 points higher than girls.

Table 2 displays the number of eligible scores (120 or above) obtained by boys and girls qualifying them for the gifted program. Again, no significant differences were found.

Table 3 reveals the number of gifted subjects found in each of two IQ categories (below 130 and 130 and above). A non-significant trend found that a disproportionate number of boys scored 130 and above.

Discussion

The data presented in this study indicated only small differences between IQ scores obtained by boys and girls evaluated for entrance into gifted education programs. The findings generally support the assumption held by most educators that intelligence is equally distributed between the sexes. Research has indicated that there is a great degree of variability in talents of gifted students, making them a highly heterogeneous group. The variability between gender groups accounts for only a minor part of this heterogeneity.

Based on the findings of this study, educators must ask themselves, why, for example, are less than 2 percent of American patentees women?...Why are there only two females in the United States Senate, one female on the Supreme Court, and one female cabinet member? Why do women constitute less than 5 percent of the House of Representatives, own only 7 percent of all businesses in the country...occupy only 5 percent of executive positions in American corporations, hold none of the leading positions in the top five orchestras in the United States? (p. 101-102)

Table 1

t-tests for independent samples of SEX (Verbal Scale)

Variable	Number of Cases	Mean	SD	SE of MEAN
VERB				
SEX 1	60	126.2542	9.746	1.269
SEX 2	60	122.9500	9.897	1.278

Mean Difference = 3.3042

Levene's Test for Equality of Variances: F= .105 P= .746

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.83	117	.069	1.801	(-.263, 6.872)
Unequal	1.84	117.00	.069	1.801	(-.263, 6.871)

t-tests for independent samples of SEX (Performance Scale)

Variable	Number of Cases	Mean	SD	SE of Mean
PF				
SEX 1	60	121.7627	11.827	1.540
SEX 2	60	122.8667	10.673	1.378

Mean Difference = -1.1040

Levene's Test for Equality of Variances: F= .635 P= .427

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	-.53	117	.594	2.064	(-5.193, 2.985)
Unequal	-.53	115.36	.594	2.066	(-5.198, 2.990)

t-tests for independent samples of SEX (Full Scale)

Variable	Number of Cases	Mean	SD	SE of Mean
FULL				
SEX 1	60	126.5763	8.112	1.056
SEX 2	60	125.0667	7.598	.981

Mean Difference = 1.5096

Levene's Test for Equality of Variances: F= 1.104 P= .295

	t-test for Equality of Means				95%
Variances	t-value	df	2-Tail Sig	SE of Diff	CI for Diff
Equal	1.05	117	.297	1.440	(-1.344, 4.363)
Unequal	1.05	116.21	.297	1.441	(-1.346, 4.365)

Table 2

Chi square of selection criteria in gifted program

	One Criterion	Two Criterion	Three Criterion	Total
Males	26	22	12	60
Females	19	28	13	60
Total	45	50	25	120

X2 = 1.84
p > .05

Table 3

Chi Square of gender by IQ Classification

GENDER

	Below 130	130 and Above	
	1.00	2.00	Total
Females	46	14	60
Males	39	21	60
Total	85	35	120

$x2 = 1.98$ (df = 1)
$p > .05$

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